

# Search Request Form

Scientific and Technical Information Center

Requester's Full Name: L. Eric Crane Examiner #: 65753 Date: 07/19/04  
 Art Unit: 1623 Phone Number: 308-4639 Serial No. 10/080,503.  
 Mail Box & Bldg/Room Loc: 5D-35 Results Format Preferred: **PAPER**  
**[5C-18/Remsen]**

If more than one search is submitted, please prioritize searches in order of need.  
 \*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, key words, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known. Please attach a copy of the cover sheet, pertinent claims, and/or abstract..

Title of Invention: See attached copy of claims.

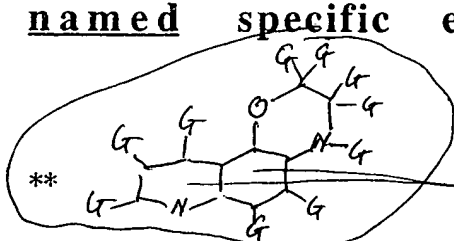
Inventors (please provide full names): See attached copy of claims.

Earliest Priority Filing Date: 02/23/2001

*\*For Sequence Searches only\** Please include all of the pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

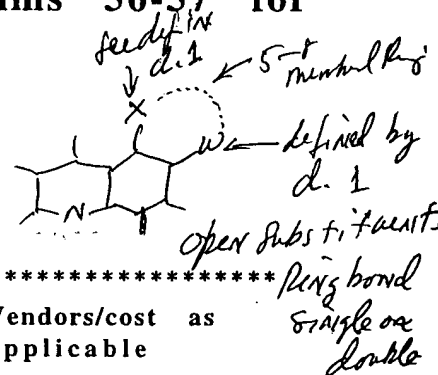
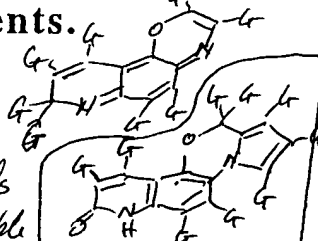
*Should file US 6, 030, 967*

Please search for the compounds included within the scope of the structures shown below. NB: only compounds with the first ring system\*\* are enabled by examples in the specification; see also claims 56-57 for **named** specific embodiments.



*G = open  
Substituent*

*Ring bonds  
Single or double*



## STAFF USE ONLY

Searcher: \_\_\_\_\_

Searcher Phone #: \_\_\_\_\_

Searcher Location: \_\_\_\_\_

Date Searcher Picked Up: \_\_\_\_\_

Date Completed: \_\_\_\_\_

Searcher Prep & Review Time: \_\_\_\_\_

Clerical Prep Time: \_\_\_\_\_

Online Time: \_\_\_\_\_

## Type of Search

NA Sequence(#) \_\_\_\_\_

AA Sequence(#) \_\_\_\_\_

Structure (#) \_\_\_\_\_

Bibliographic \_\_\_\_\_

Litigation \_\_\_\_\_

Full Text \_\_\_\_\_

Patent Family \_\_\_\_\_

Other \_\_\_\_\_

## Vendors/cost as applicable

STN \_\_\_\_\_

Dialog \_\_\_\_\_

Questel/Orbit \_\_\_\_\_

Dr. Link \_\_\_\_\_

Lexis/Nexis \_\_\_\_\_

Seq.Syst'ms \_\_\_\_\_

WWW/Internet \_\_\_\_\_

Other(Specify) \_\_\_\_\_

10/080503

FILE 'CAPLUS' ENTERED AT 15:10:39 ON 21 JUL 2004  
L54 1 S US6030967/PN

L54 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2004 ACS on STN

ED Entered STN: 11 Mar 1998

ACCESSION NUMBER: 1998:147315 CAPLUS

DOCUMENT NUMBER: 128:204735

TITLE: Preparation of naphtholactams and lactones for  
use as bone morphogenetic protein active agentsINVENTOR(S): Marui, Shogo; Hazama, Masatoshi; Notoya, Kohei;  
Ogino, Masaki

PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan

SOURCE: PCT Int. Appl., 300 pp.

CODEN: PIXXD2

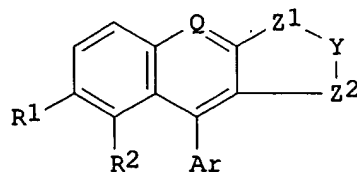
DOCUMENT TYPE: Patent

LANGUAGE: English

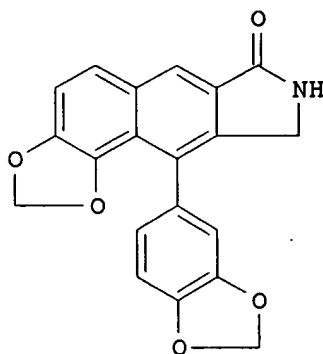
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9807705	A1	19980226	WO 1997-JP2858	19970819
W:	AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, HU, IL, IS, KG, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, SL, TJ, TM, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
AU 9738660	A1	19980306	AU 1997-38660	19970819
EP 920416	A1	19990609	EP 1997-935809	19970819
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI			
JP 11005779	A2	19990112	JP 1997-224015	19970820
US 6030967	A	20000229	US 1997-945631	19971030 <--
PRIORITY APPLN. INFO.:			JP 1996-218353	19960820
			JP 1997-107617	19970424
			WO 1997-JP2858	19970819
OTHER SOURCE(S):	MARPAT 128:204735			
GI				



I



II

10/080503

AB Naphtholactams and lactones I [R1 = R2 = H, OH, alkyl, alkoxy, halogen; R1R2 = fused ring such as OCH2O, OCH2CH2O, CH2CH2O, etc.; Q = substituted or unsubstituted carbon, N, N(O); Z1 = C1-3-alkylene, oxo or thioxo containing alkylene; Z2 = C1-3-alkylene, oxo or thioxo containing alkylene; Y = methylene, S, S(O), NH, substituted N; Ar = aryl, heteroaryl], helioxanthanin analogs, were prepared for use as bone morphogenetic protein active agents. Thus, lactam II was prepared starting from helioxanthanin and was tested for induction of alkaline phosphatase production in cultured murine osteoblasts.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> sel 154 rn  
E710 THROUGH E946 ASSIGNED

FILE 'REGISTRY' ENTERED AT 15:11:56 ON 21 JUL 2004  
L55 237 SEA FILE=REGISTRY ABB=ON PLU=ON (105-36-2/BI OR  
105-56-6/BI OR 108-31-6/BI OR 109-04-6/BI OR 109-89-7/BI  
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L56  
L57  
L58

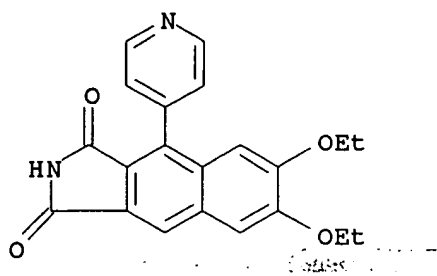
226 S L55 AND RSD/FA ← Requires ring syst  
167 S L56 AND N=>1 ← One or more "N"s  
159 S L57 AND NR=>3 ← Three or more rings

Searcher : Shears 571-272-2528

10/080503

L59 155 S L58 AND 1/NC

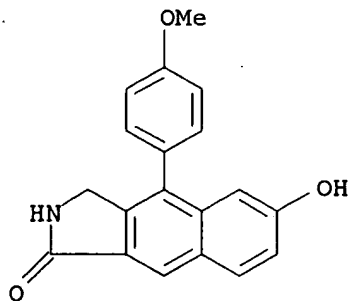
L59 155 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 1H-Benz[f]isoindole-1,3(2H)-dione, 6,7-diethoxy-4-(4-pyridinyl)-  
(9CI)  
MF C21 H18 N2 O4



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):.

L59 155 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 1H-Benz[f]isoindol-1-one, 2,3-dihydro-6-hydroxy-4-(4-methoxyphenyl)-  
(9CI)  
MF C19 H15 N O3

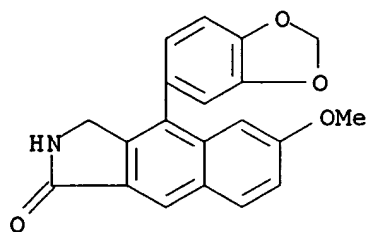


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):.

L59 155 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 1H-Benz[f]isoindol-1-one, 4-(1,3-benzodioxol-5-yl)-2,3-dihydro-6-  
methoxy- (9CI)  
MF C20 H15 N O4

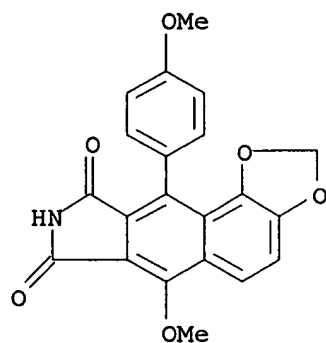
10/080503



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):.

L59 155 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 7H-1,3-Benzodioxolo[4,5-f]isoindole-7,9(8H)-dione,  
6-methoxy-10-(4-methoxyphenyl)- (9CI)  
MF C21 H15 N O6

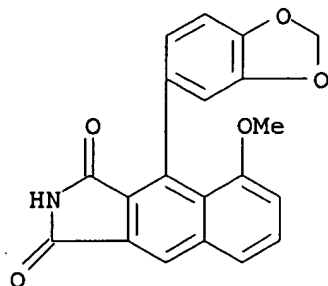


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):.

L59 155 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN  
IN 1H-Benz[f]isoindole-1,3(2H)-dione, 4-(1,3-benzodioxol-5-yl)-5-  
methoxy- (9CI)  
MF C20 H13 N O5

10/080503



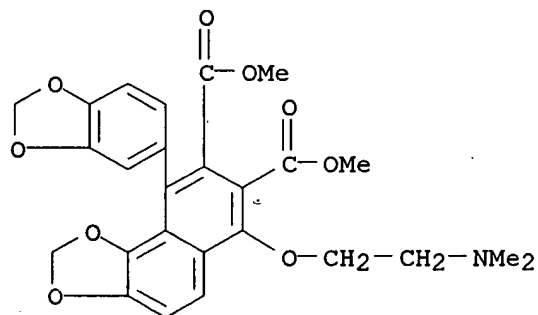
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):.

L59 155 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN

IN Naphtho[1,2-d]-1,3-dioxole-7,8-dicarboxylic acid,  
9-(1,3-benzodioxol-5-yl)-6-[2-(dimethylamino)ethoxy]-, dimethyl  
ester (9CI)

MF C26 H25 N O9



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

$$= j$$

GRAPH ATTRIBUTES:  
RSPEC 8  
NUMBER OF NODES IS 13

L14 2698 SEA FILE=REGISTRY SSS FUL L12

← Require three or more "F"s.; See named compts (claims 56-57)

(FILE 'CAPLUS' ENTERED AT 15:08:16 ON 21 JUL 2004)

L49 24 S L48

L50 17 S L49 NOT (PY=>2001 OR PD=>20010223)

E434 THROUGH E472 ASSIGNED

L50 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:218572 CAPLUS

DOCUMENT NUMBER: 132:260701

TITLE: Tricyclic compounds, their preparation, and cyclic GMP phosphodiesterase inhibitors

INVENTOR(S) : Tsuburai, Shogo; Doi, Takayuki; Tarui, Naoki

PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 71 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

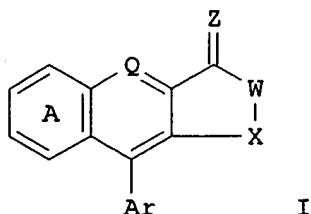
**PATENT INFORMATION:**

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000095759	A2	20000404	JP 1999-204103	19990719
PRIORITY APPLN. INFO.:			JP 1998-204963	19980721

Searcher :        Shears        571-272-2528

10/080503

OTHER SOURCE(S): MARPAT 132:260701  
GI

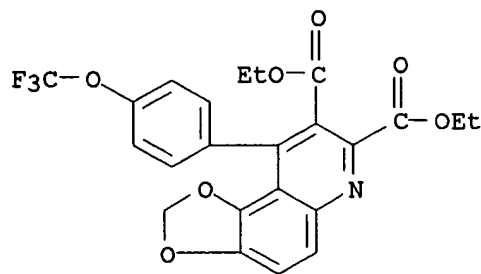


AB Title inhibitors contain tricyclic compds. I [ring A = (substituted) benzene ring; W = (substituted) NH; Q = CR, N; R = H, (substituted) alkyl, (substituted) alkoxy; X = (substituted) C1-2 alkylene; Z = H2, O; Ar = (substituted) aromatic hydrocarbyl, (substituted) aromatic heterocyclyl] or their salts. (6-Bromo-1,3-benzodioxol-5-yl)methanol (4.0 g) was treated with BuLi followed by 2.3 g 4-FC6H4CN in THF/hexane at room temperature for 2 h and treated with 3.5 g maleimide and p-MeC6H4SO3H in PhMe under reflux for 15 h to give 5.6 g I (ring A = 1,3-benzodioxole, W = NH, Q = CH, X = CO, Z = O, Ar = C6H4F-p). I (ring A = 1,3-benzodioxole, W = 4-pyridylmethylimino, Q = CH, X = CH2, Z = O, Ar = C6H4F-p) in vitro inhibited recombinant human phosphodiesterase with IC50 of 8.3 nM. Formulation examples are given.

IT 263019-64-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of tricyclic compds. as cyclic GMP phosphodiesterase inhibitors)

RN 263019-64-3 CAPLUS

CN 1,3-Dioxolo[4,5-f]quinoline-7,8-dicarboxylic acid,  
9-[4-(trifluoromethoxy)phenyl]-, diethyl ester (9CI) (CA INDEX NAME)



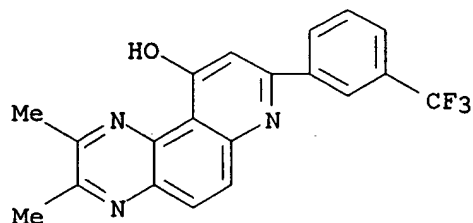
L50 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1995:772254 CAPLUS  
DOCUMENT NUMBER: 123:339999  
TITLE: Synthesis and antimalarial activity of

Searcher : Shears 571-272-2528



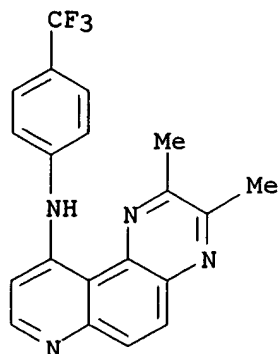
10/080503

AUTHOR(S): pyrido[3,2-f]quinoxalines and their N-oxides  
Venugopalan, B.; Pinto de Souza, E.; Sathe, K.  
M.; Chatterjee, D. K.; Iyer, N.  
CORPORATE SOURCE: Dep. Chem., Hoechst India Ltd., Mulund, India  
SOURCE: Indian Journal of Chemistry, Section B: Organic  
Chemistry Including Medicinal Chemistry (1995),  
34B(9), 778-90  
CODEN: IJSBDB; ISSN: 0376-4699  
PUBLISHER: Publications & Information Directorate, CSIR  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 123:339999  
AB Unsubstituted 2,3-di-methyl-, and 2,3-diphenyl-10-chloropyrido[3,2-  
f]quinoxalines have been prepared and converted to 10-substituted  
amino and Mannich base derivs. Pyrido[3,2-f]quinoxaline undergoes  
oxidation in the presence of m-CPBA to give the corresponding mono and  
bis N-oxides. The mono N-oxide reacts with POCl<sub>2</sub> to give the  
dichloro derivative and with tri-methylsilyl cyanide to give the  
8-cyano-10-chloro derivative. The dichloropyrido[3,2-f]quinoxaline  
further undergoes oxidation with m-CPBA to give dichloro mono N-oxide.  
All the compds. have been tested in the Plasmodium berghei infected  
mice by oral route.  
IT 170948-53-5P  
RL: BAC (Biological activity or effector, except adverse); BSU  
(Biological study, unclassified); RCT (Reactant); SPN (Synthetic  
preparation); BIOL (Biological study); PREP (Preparation); RACT  
(Reactant or reagent)  
(synthesis and antimalarial activity of pyrido[3,2-f]quinoxalines  
and their N-oxides)  
RN 170948-53-5 CAPLUS  
CN Pyrido[3,2-f]quinoxalin-10-ol, 2,3-dimethyl-8-[3-  
(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



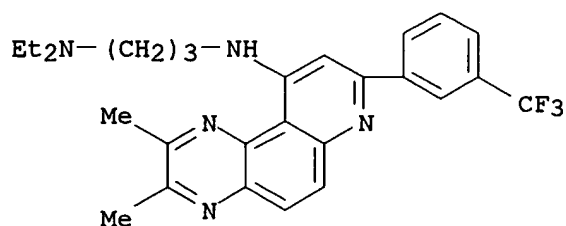
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170948-35-3P 170948-36-4P 170948-37-5P  
170948-38-6P 170948-39-7P  
RL: BAC (Biological activity or effector, except adverse); BSU  
(Biological study, unclassified); SPN (Synthetic preparation); BIOL  
(Biological study); PREP (Preparation)  
(synthesis and antimalarial activity of pyrido[3,2-f]quinoxalines  
and their N-oxides)  
RN 170948-22-8 CAPLUS  
CN Pyrido[3,2-f]quinoxalin-10-amine, 2,3-dimethyl-N-[4-  
(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)

10/080503



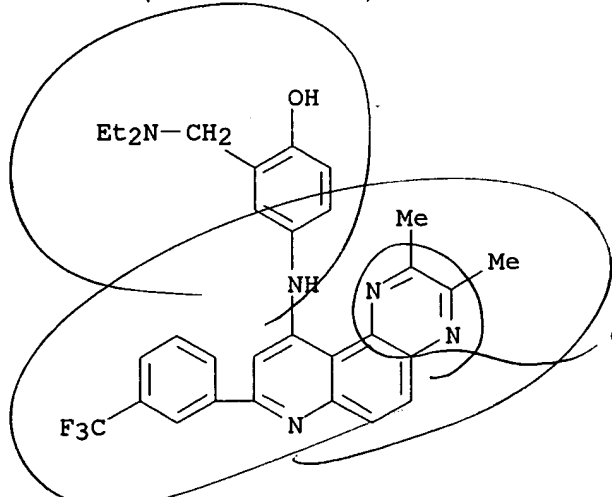
RN 170948-33-1 CAPLUS

CN 1,3-Propanediamine, N'-[2,3-dimethyl-8-[3-(trifluoromethyl)phenyl]pyrido[3,2-f]quinoxalin-10-yl]-N,N-diethyl- (9CI) (CA INDEX NAME)



RN 170948-34-2 CAPLUS

CN Phenol, 2-[(diethylamino)methyl]-4-[[2,3-dimethyl-8-[3-(trifluoromethyl)phenyl]pyrido[3,2-f]quinoxalin-10-yl]amino]- (9CI) (CA INDEX NAME)



RN 170948-35-3 CAPLUS

CN 1,4-Pentanedi-amine, N4-[2,3-dimethyl-8-[3-(trifluoromethyl)phenyl]pyrido[3,2-f]quinoxalin-10-yl]-N1,N1-diethyl- (9CI) (CA INDEX NAME)

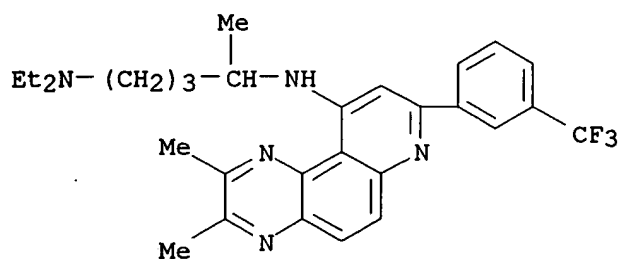
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Searcher :

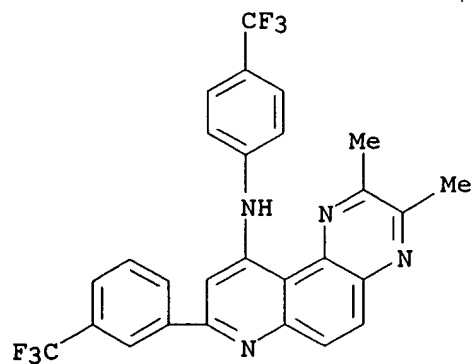
Shears

571-272-2528

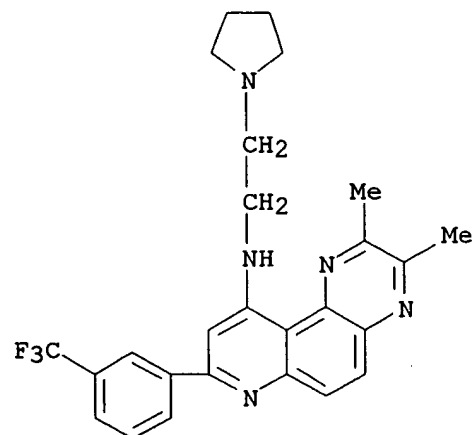
10/080503



RN 170948-36-4 CAPLUS  
CN Pyrido[3,2-f]quinoxalin-10-amine, 2,3-dimethyl-8-[3-(trifluoromethyl)phenyl]-N-[4-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



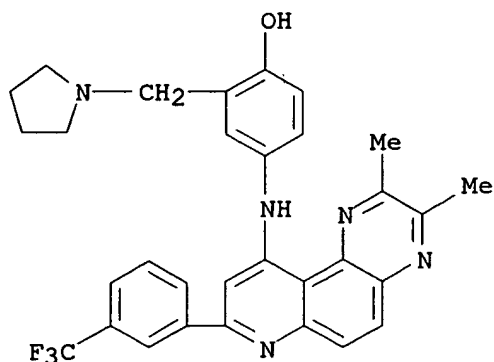
RN 170948-37-5 CAPLUS  
CN Pyrido[3,2-f]quinoxalin-10-amine, 2,3-dimethyl-N-[2-(1-pyrrolidinyl)ethyl]-8-[3-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



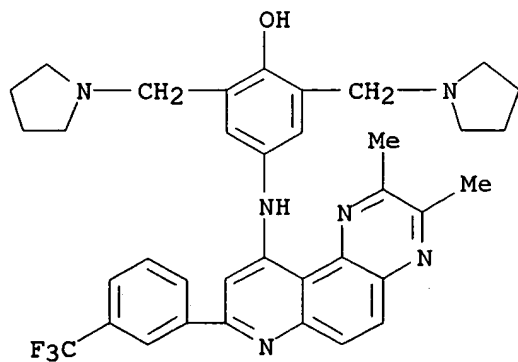
Searcher : Shears 571-272-2528

10/080503

RN 170948-38-6 CAPLUS  
CN Phenol, 4-[[2,3-dimethyl-8-[3-(trifluoromethyl)phenyl]pyrido[3,2-f]quinoxalin-10-yl]amino]-2-(1-pyrrolidinymethyl)- (9CI) (CA INDEX NAME)



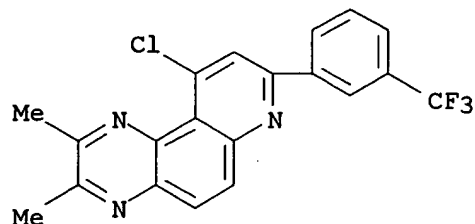
RN 170948-39-7 CAPLUS  
CN Phenol, 4-[[2,3-dimethyl-8-[3-(trifluoromethyl)phenyl]pyrido[3,2-f]quinoxalin-10-yl]amino]-2,6-bis(1-pyrrolidinymethyl)- (9CI) (CA INDEX NAME)



IT 170948-66-0P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)  
(synthesis and antimalarial activity of pyrido[3,2-f]quinoxalines and their N-oxides)

RN 170948-66-0 CAPLUS  
CN Pyrido[3,2-f]quinoxaline, 10-chloro-2,3-dimethyl-8-[3-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)

10/080503



L50 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1995:615190 CAPLUS

DOCUMENT NUMBER: 123:11333

TITLE: Photochromic plastic lenses with persistent color and their manufacture

INVENTOR(S): Nakanishi, Masayasu; Kobayashi, Hiroyuki

PATENT ASSIGNEE(S): Nippon Kogaku Kk, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07013017	A2	19950117	JP 1993-156534	19930628

PRIORITY APPLN. INFO.: JP 1993-156534 19930628

AB The title lenses are made from plastics and bear a coating containing  $\geq 2$  photochromic substances having similar color tones provided that one of which has excellent light resistance and the other has poor light resistance. A photochromic coating was formulated from chromene compound, a spirooxazine compound, a fulgimide compound, ethylene glycol and glycerin.

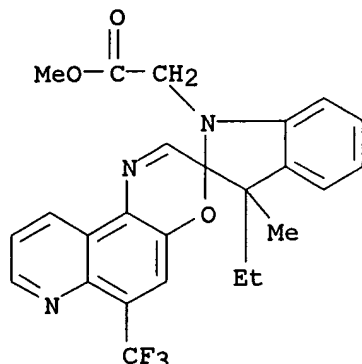
IT 139454-02-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(photochromic plastic lenses with persistent color and manufacture)

RN 139454-02-7 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3-ethyl-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)

10/080503



L50 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1993:222976 CAPLUS  
 DOCUMENT NUMBER: 118:222976  
 TITLE: Photochromic molding materials  
 INVENTOR(S): Tanaka, Takashi; Imura, Tomohito; Momota, Junji  
 PATENT ASSIGNEE(S): Tokuyama Soda Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03282445	A2	19911212	JP 1990-188004	19900718
JP 3047434	B2	20000529		

PRIORITY APPLN. INFO.: JP 1990-75678 A1 19900327

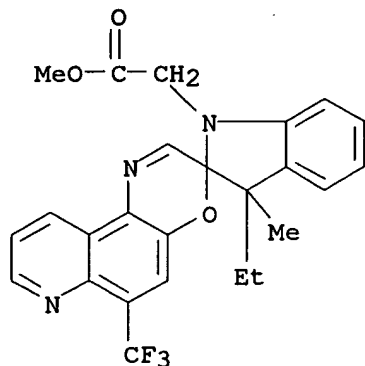
AB A photochromic molding material containing photochromic compds. with different fatigue lives comprises a dispersion of a photochromic compound with a short fatigue life in a polymer which is surface-treated with a photochromic compound having a long fatigue life. Typically photochromic compds. such as chromene, fulgide, fulgimide, and spirooxazine derivs. are used. The photochromic material improves the durability of the photochromic effect, provides a variety of neutral tints including gray, brown, and amber, and is useful for photochromic lenses, optical filters, display devices, and recording materials.

IT 139454-02-7 139454-07-2  
 RL: USES (Uses)  
 (photochromic molding material containing polymer and)

RN 139454-02-7 CAPLUS

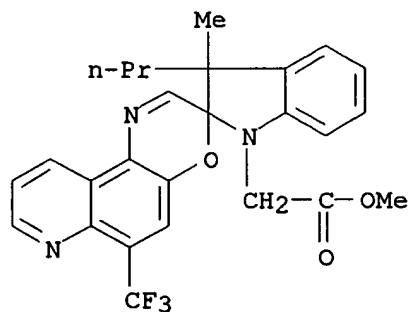
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3-ethyl-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
 (CA INDEX NAME)

10/080503



RN 139454-07-2 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3-methyl-3-propyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)



IT 139454-00-5P 139454-01-6P

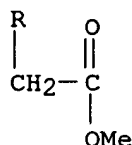
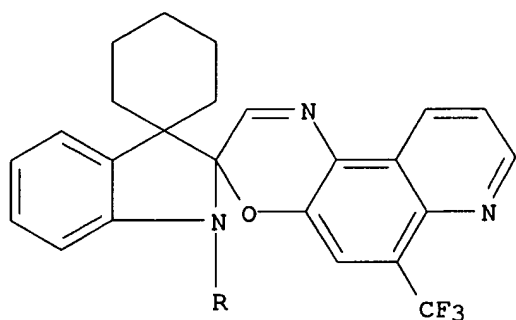
RL: PREP (Preparation)

(preparation of, as photochromic substance)

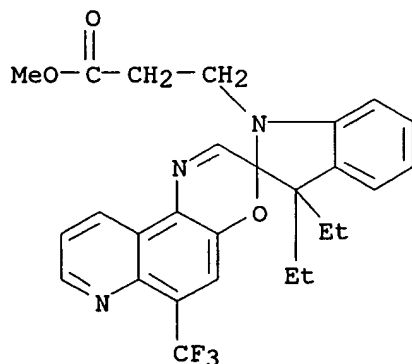
RN 139454-00-5 CAPLUS

CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

10/080503



RN 139454-01-6 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-  
propanoic acid, 3,3-diethyl-6'-(trifluoromethyl)-, methyl ester  
(9CI) (CA INDEX NAME)



L50 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1993:49355 CAPLUS  
DOCUMENT NUMBER: 118:49355  
TITLE: Photochromic form with increased durability of  
photochromic substance  
INVENTOR(S): Tanaka, Takashi; Imura, Tomohito; Momota, Junji  
PATENT ASSIGNEE(S): Tokuyama Soda K. K., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1

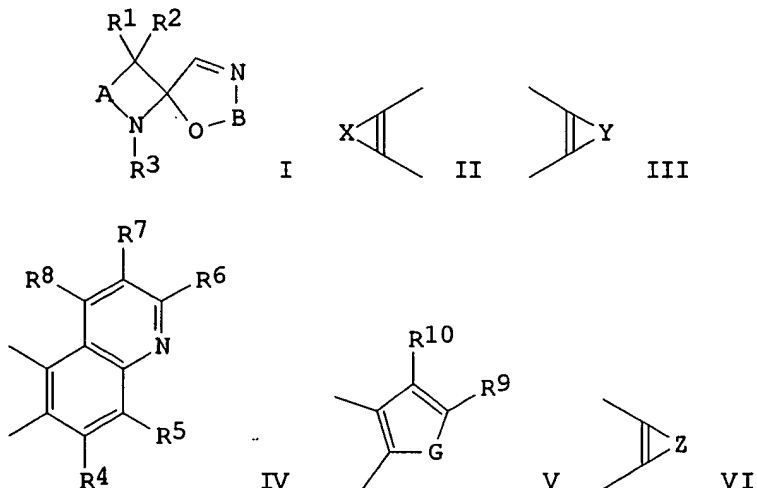
Searcher : Shears 571-272-2528



10/080503

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04075054	A2	19920310	JP 1990-187040	19900717
JP 2735679	B2	19980402		
PRIORITY APPLN. INFO.:			JP 1990-187040	19900717
GI				



AB The title photochromic form comprises a resin layer containing a spiroxazine compound I [A, G = II, which may be aromatic hydrocarbon or unsatd. heterocyclyl; B = III, which may be IV or V (R4-10 = H, halo, hydrocarbon, alkoxy, cyano, halo-containing alkyl, amino, alkoxy-carbonyl; R4 and/or R5 is cyano, halo-containing alkyl, alkoxy-carbonyl; when III is IV, R1,2 are H, alkyl, or R1 and R2 may form a ring; R3 = alkoxy-carbonylalkyl; when III is V, R1,2 are H, alkyl with C ≥ 2; R1 and R2 may form a ring; R3 = H, hydrocarbon, alkoxy-carbonylalkyl, cyanoalkyl], which is coated with layers of a thermosetting resin and a hydrolysis product of an organic Si compound This photochromic form is used with a chromene derivative to provide brown or gray tone.

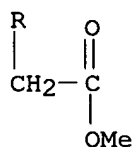
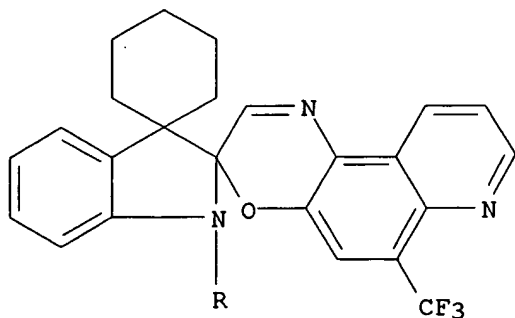
IT 139454-00-5P 139454-01-6P 139454-02-7P  
139454-07-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and use of, photochromic substance, photochromic form containing, with increased durability)

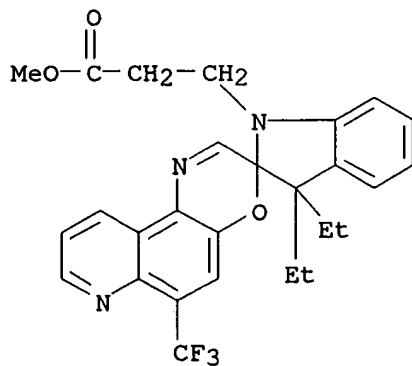
RN 139454-00-5 CAPLUS

CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

10/080503

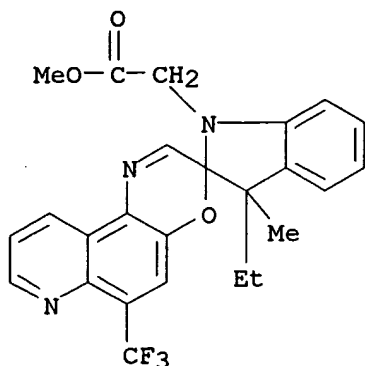


RN 139454-01-6 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-  
propanoic acid, 3,3-diethyl-6'-(trifluoromethyl)-, methyl ester  
(9CI) (CA INDEX NAME)



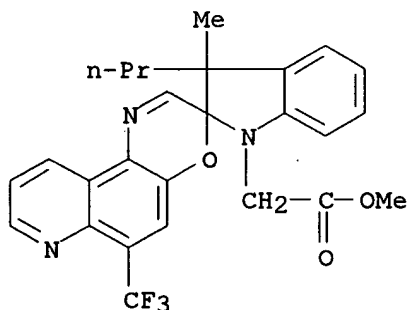
RN 139454-02-7 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic  
acid, 3-ethyl-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)

10/080503



RN 139454-07-2 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3-methyl-3-propyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)



L50 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1993:14073 CAPLUS

DOCUMENT NUMBER: 118:14073

TITLE: Photochromic composition for memories and displays

INVENTOR(S): Tanaka, Takashi; Imura, Tomohito; Momota, Junji

PATENT ASSIGNEE(S): Tokuyama Soda K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04053893	A2	19920221	JP 1990-161310	19900621
JP 2723341	B2	19980309		

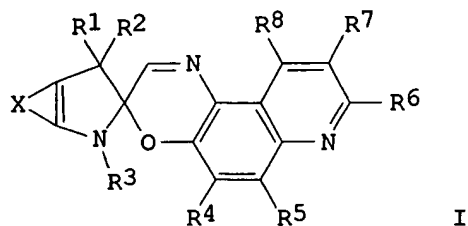
PRIORITY APPLN. INFO.:

JP 1990-161310 19900621

GI

Searcher : Shears 571-272-2528

10/080503



AB The title photochromic composition contains a spirooxazine, (I)  
 [X-containing  
 ring = aromatic hydrocarbon or unsatd. heterocyclic ring; R1,R2 = H,  
 alkyl; R3 = alkoxycarbonylalkyl group; R4-R8 = H, hydrocarbyl,  
 alkoxy, halo, CN, CF3, alkoxycarbonyl; at least 1 selected from R4,  
 R5 is CN, CF3, alkoxycarbonyl], 100 parts, and a chromene derivative  
 0.01-10,000 parts. The title composition may also contain a polymer and  
 a UV stabilizer. Various color tones (gray, brown, amber, etc.) can  
 be attained with the composition of this invention.

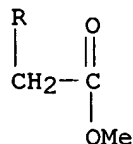
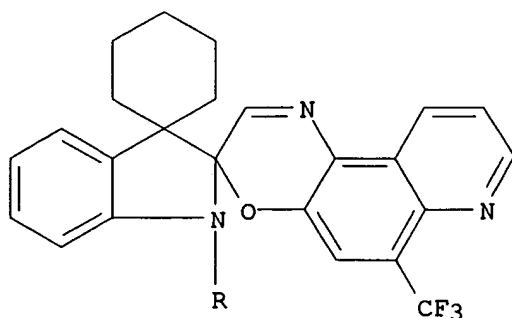
IT 139454-00-5P 139454-01-6P 139454-02-7P  
 139454-07-2P 139454-10-7P 139454-11-8P  
 139454-13-0P 139454-16-3P

RL: PREP (Preparation)

(preparation of, photochromic composition containing)

RN 139454-00-5 CAPLUS

CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(trifluoromethyl)-, methyl  
 ester (9CI) (CA INDEX NAME)



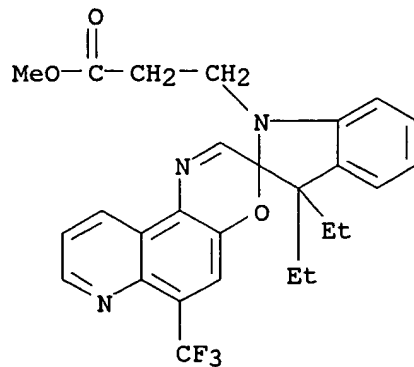
RN 139454-01-6 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-

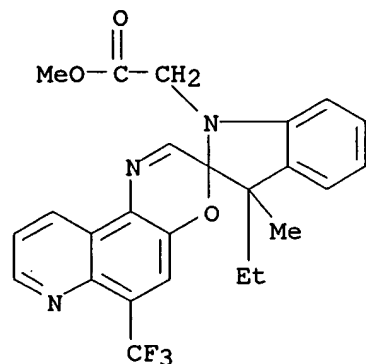
Searcher : Shears 571-272-2528

10/080503

propanoic acid, 3,3-diethyl-6'-(trifluoromethyl)-, methyl ester  
(9CI) (CA INDEX NAME)

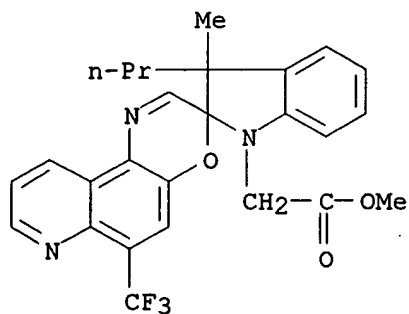


RN 139454-02-7 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic  
acid, 3-ethyl-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)



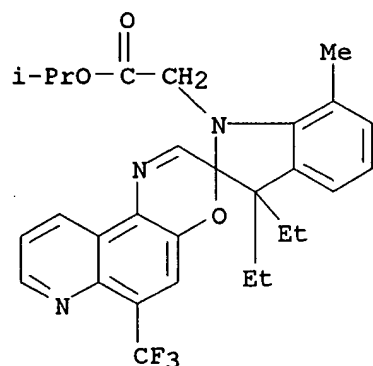
RN 139454-07-2 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic  
acid, 3-methyl-3-propyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)

10/080503



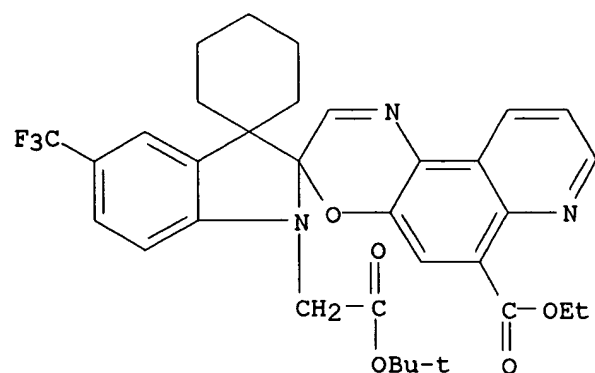
RN 139454-10-7 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3,3-diethyl-7-methyl-6'-(trifluoromethyl)-, 1-methylethyl ester (9CI) (CA INDEX NAME)



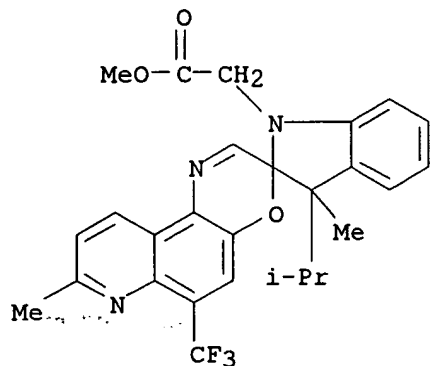
RN 139454-11-8 CAPLUS

CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(ethoxycarbonyl)-5'-(trifluoromethyl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

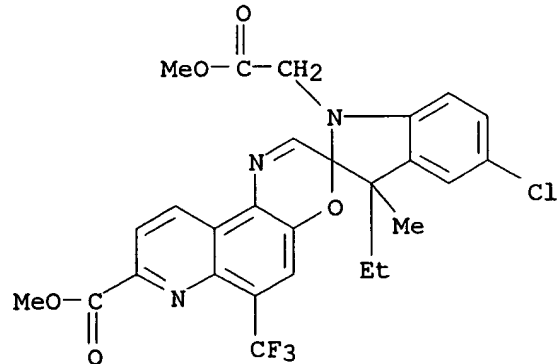


10/080503

RN 139454-13-0 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3,8'-dimethyl-3-(1-methylethyl)-6'-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)



RN 139454-16-3 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 5-chloro-3-ethyl-8'-(methoxycarbonyl)-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

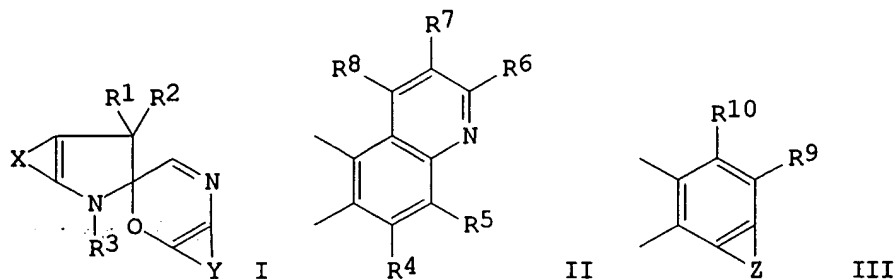


L50 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1992:661754 CAPLUS  
DOCUMENT NUMBER: 117:261754  
TITLE: Photochromic spiroxazines-containing resin matrixes  
INVENTOR(S): Tanaka, Takashi; Imura, Tomohito; Momota, Junji  
PATENT ASSIGNEE(S): Tokuyama Soda K. K., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

Searcher : Shears 571-272-2528

10/080503

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04053947	A2	19920221	JP 1990-162599	19900622
JP 2735676	B2	19980402		
PRIORITY APPLN. INFO.:			JP 1990-162599	19900622
GI				



AB The spirooxazine (I) [X-containing ring = aromatic or unsatd. heterocycle; Y-containing ring = (II) or (III) (R4-10 = H, halo, hydrocarbon, alkoxy, CN, haloalkyl, NH<sub>2</sub>, substituted amino or alkoxycarbonyl; R4 and(or) R5 = CN, haloalkyl, alkoxycarbonyl; Z-containing ring = aromatic hydrocarbon or unsatd. heterocycle); when Y-containing ring is II, R1,2 = H, alkyl and R1,2 may join to form a ring; R3 = alkoxycarbonyl; when Y-containing ring is III, R1,2 = H, alkyl and 1 or both are C<sub>2</sub> alkyl or the 2 may join to form a ring and R3 = H, hydrocarbon, alkoxycarbonylalkyl, cyanoalkyl] dispersed resin layer is laminated on both sides with a thermosetting resin layer. The photochromic member obtained has good photochromic durability and is useful in a wide range of recording media.

IT 139454-00-5P 139454-01-6P 139454-02-7P  
139454-07-2P

RL: PREP (Preparation)

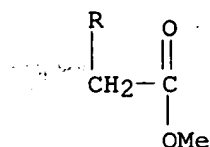
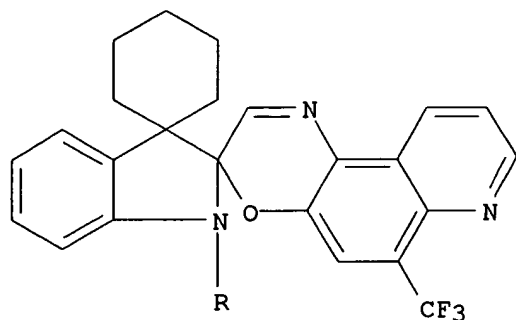
(preparation of, as photochromic substance for photochromic medium)

RN 139454-00-5 CAPLUS

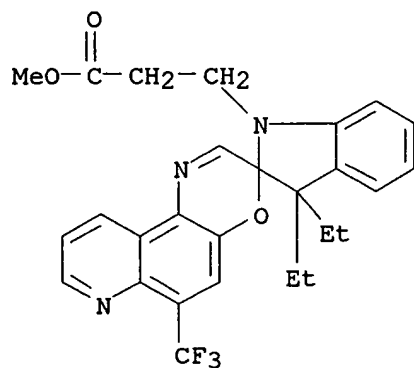
CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)



10/080503

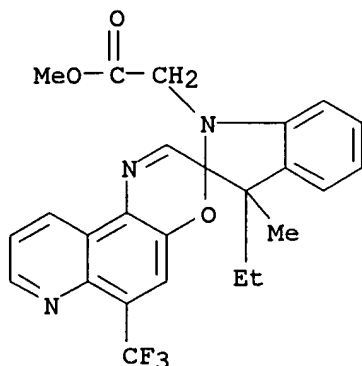


RN 139454-01-6 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-  
propanoic acid, 3,3-diethyl-6'-(trifluoromethyl)-, methyl ester  
(9CI) (CA INDEX NAME)



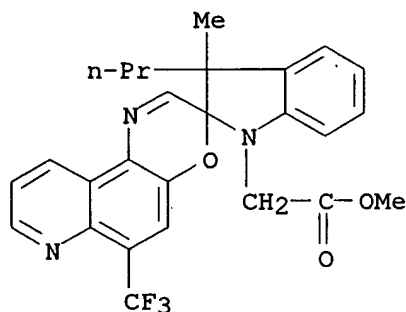
RN 139454-02-7 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic  
acid, 3-ethyl-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)

10/080503



RN 139454-07-2 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3-methyl-3-propyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)



L50 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1992:601988 CAPLUS

DOCUMENT NUMBER: 117:201988

TITLE: Photochromic composition

INVENTOR(S): Tanaka, Takashi; Imura, Tomohito; Momota, Junji

PATENT ASSIGNEE(S): Tokuyama Soda Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04039382	A2	19920210	JP 1990-145459	19900605
JP 2723340	B2	19980309		

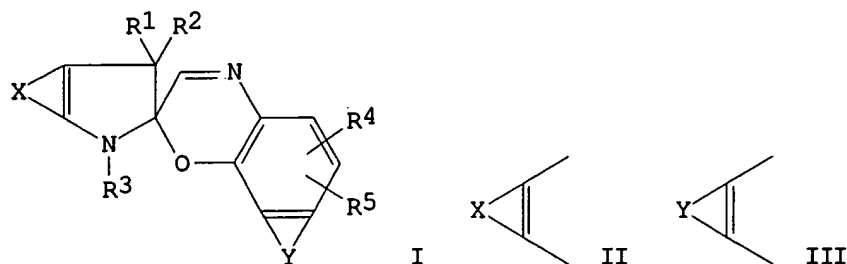
PRIORITY APPLN. INFO.: JP 1990-145459 19900605

OTHER SOURCE(S): MARPAT 117:201988

GI

Searcher : Shears 571-272-2528

10/080503



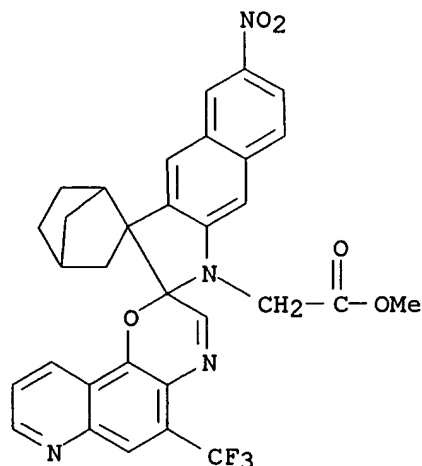
AB A photochromic composition comprises a spirooxazine compound I [II and III are aromatic hydrocarbon or unsatd. heterocyclyl; R1,2 = alkyl; R1,2 may form a ring; R3 = H, hydrocarbon, alkoxy, carbonylalkyl, cyanoalkyl; R4,5 = H, halo, hydrocarbon, alkoxy, cyano, halogenated alkyl, amino, alkoxy, carbonyl] 100 weight parts and chromene or its derivative 0.01-10,000 weight parts. This photochromic composition gives gray, amber, and brown tones.

IT 138106-02-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and use of, photochromic composition from)

RN 138106-02-2 CAPLUS

CN Dispiro[bicyclo[2.2.1]heptane-2,3'-[3H]benz[f]indole-2'(1'H),2''-[2H]pyrido[2,3-h][1,4]benzoxazine]-1'-acetic acid, 6'-nitro-5''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)



L50 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1992:552139 CAPLUS

DOCUMENT NUMBER: 117:152139

TITLE: Photochromic compositions for moldings

INVENTOR(S): Tanaka, Takashi; Imura, Tomohito; Momota, Junji

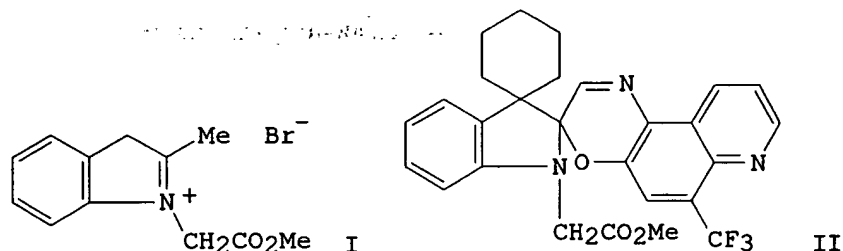
PATENT ASSIGNEE(S): Tokuyama Sonda K. K., Japan

Searcher : Shears 571-272-2528

10/080503

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04072362	A2	19920306	JP 1990-181382	19900711
JP 2915100	B2	19990705		
PRIORITY APPLN. INFO.:			JP 1990-181382	19900711
OTHER SOURCE(S):			MARPAT 117:152139	
GI				



AB The title compns. comprise thermoplastic matrix polymers and dispersed polymer particles (average size 0.01-100  $\mu$ m) containing spirooxazine compds. Thus, heating I with 6-hydroxy-5-nitro-8-(trifluoromethyl)quinoline in EtOH gave a spiro compound II. Interfacial polycondensation of H<sub>2</sub>N(CH<sub>2</sub>)<sub>6</sub>NH<sub>2</sub> and terephthaloyl dichloride in the presence of II and a cosubstrate (i.e., a chromene derivative) gave a particulate (0.1  $\mu$ m) resin composition which (15 parts) was mixed with 70 parts chlorostyrene, 30 parts methacrylate derivative of bisphenol A, and free-radical catalysts and cast molded to give moldings with photochromic properties (green).

IT 139454-00-5P 139454-01-6P 139454-02-7P

139454-07-2P

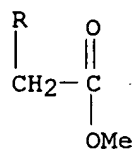
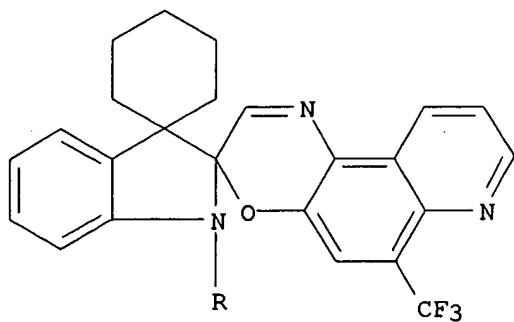
RL: PREP (Preparation)

(preparation of, for photochromic resin compns.)

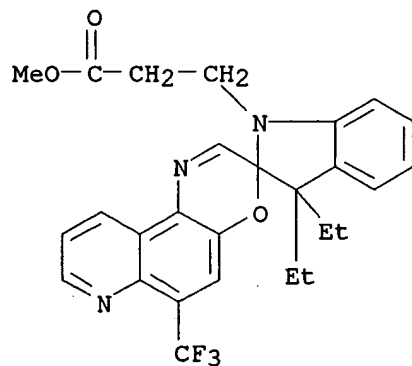
RN 139454-00-5 CAPLUS

CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

10/080503

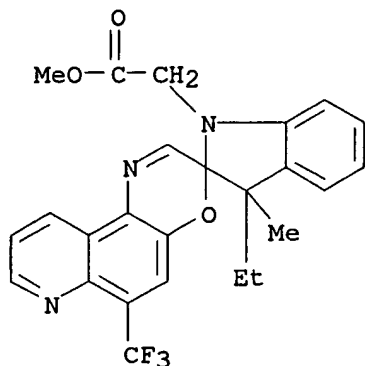


RN 139454-01-6 CAPLUS  
 CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-  
 propanoic acid, 3,3-diethyl-6'-(trifluoromethyl)-, methyl ester  
 (9CI) (CA INDEX NAME)



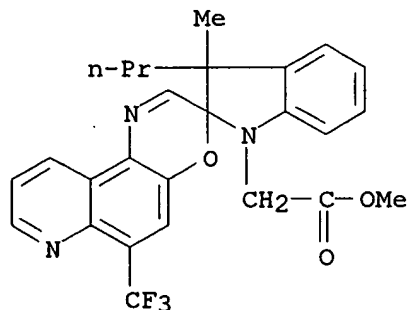
RN 139454-02-7 CAPLUS  
 CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic  
 acid, 3-ethyl-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
 (CA INDEX NAME)

10/080503



RN 139454-07-2 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3-methyl-3-propyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)



L50 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1992:140182 CAPLUS

DOCUMENT NUMBER: 116:140182

TITLE: Photochromic spirooxazine compounds and their manufacture

INVENTOR(S): Imura, Tomohito; Tanaka, Takashi; Kida, Yasuji

PATENT ASSIGNEE(S): Tokuyama Soda Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

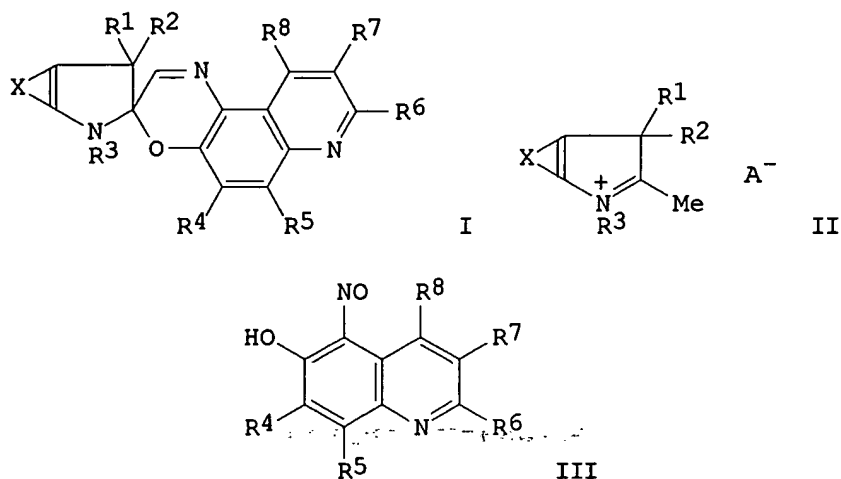
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03251587	A2	19911111	JP 1990-42347	19900226
JP 2856818	B2	19990210		
PRIORITY APPLN. INFO.:			JP 1990-42347	19900226
GI				

Searcher : Shears 571-272-2528

10/080503



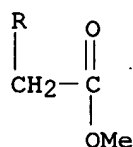
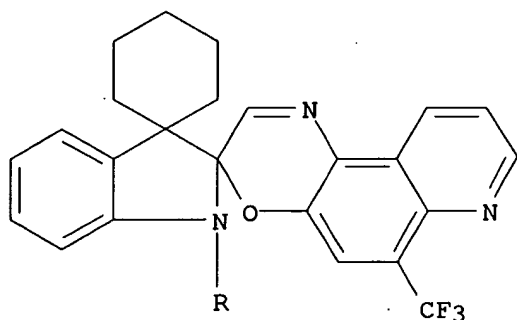
AB Photochromic materials contain spirooxazines I [X = (un)substituted aromatic or unsatd. heterocyclic group; R1-2 = H, alkyl; R1R2 may be bonded to form a ring; R3 = alkoxy-carbonylalkyl; R4-8 = H, alkyl, aryl, aralkyl, alkoxy, halo, cyano, CF<sub>3</sub>, alkoxy-carbonyl; ≥1 of R4-5 is cyano, CF<sub>3</sub>, alkoxy-carbonyl] which are prepared by treating azolinium salts II (A = anion) with nitrosoquinolines III in the presence of bases. I exhibit good photochromic property in polymer matrix at temperature higher than room temperature

IT 139454-00-5P 139454-01-6P 139454-02-7P  
139454-07-2P 139454-10-7P 139454-11-8P  
139454-13-0P 139454-16-3P  
RL: PREP (Preparation)  
(preparation of, photochromic)

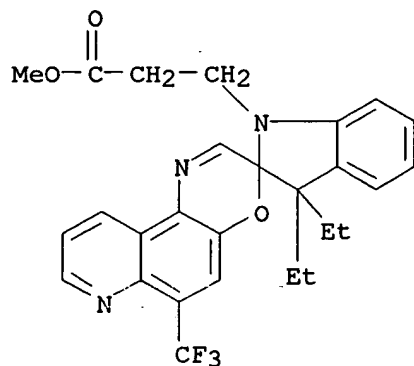
RN 139454-00-5 CAPLUS

CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

10/080503



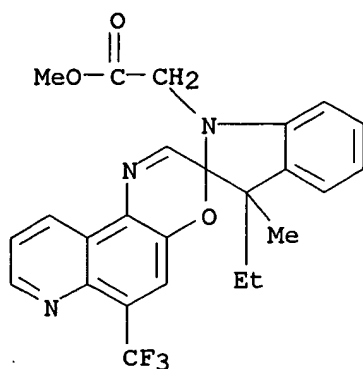
RN 139454-01-6 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-  
propanoic acid, 3,3-diethyl-6'-(trifluoromethyl)-, methyl ester  
(9CI) (CA INDEX NAME)



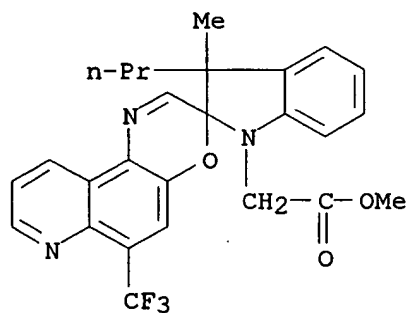
RN 139454-02-7 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic  
acid, 3-ethyl-3-methyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)



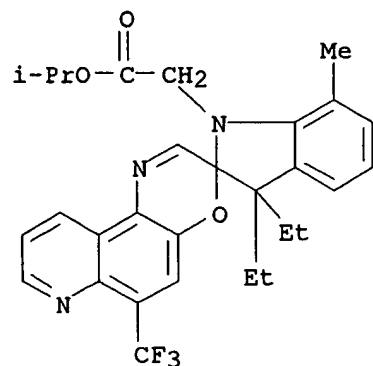
10/080503



RN 139454-07-2 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3-methyl-3-propyl-6'-(trifluoromethyl)-, methyl ester (9CI)  
(CA INDEX NAME)

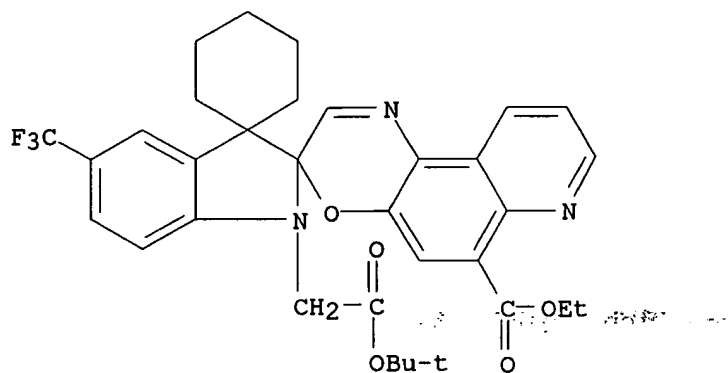


RN 139454-10-7 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3,3-diethyl-7-methyl-6'-(trifluoromethyl)-, 1-methylethyl ester (9CI) (CA INDEX NAME)

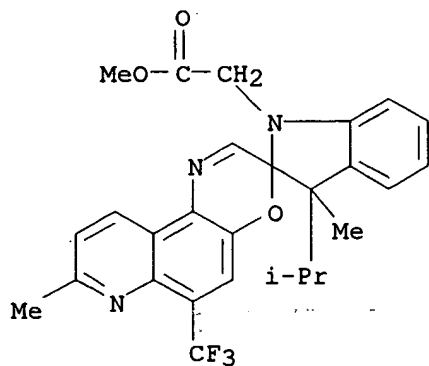


10/080503

RN 139454-11-8 CAPLUS  
CN Dispiro[cyclohexane-1,3'-[3H]indole-2'(1'H),3''-[3H]pyrido[3,2-f][1,4]benzoxazine]-1'-acetic acid, 6''-(ethoxycarbonyl)-5''-(trifluoromethyl)-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

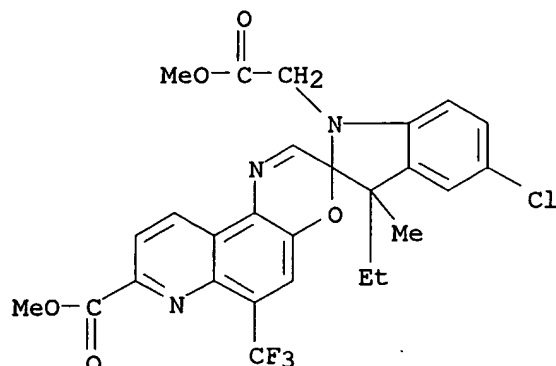


RN 139454-13-0 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3,8'-dimethyl-3-(1-methylethyl)-6''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)



RN 139454-16-3 CAPLUS  
CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 5-chloro-3-ethyl-8''-(methoxycarbonyl)-3-methyl-6''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

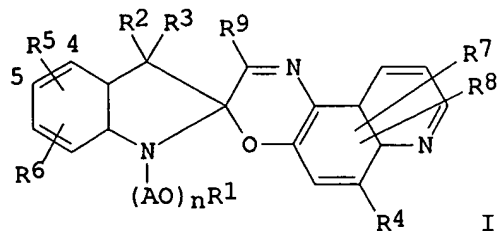
10/080503



L50 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1992:128941 CAPLUS  
 DOCUMENT NUMBER: 116:128941  
 TITLE: Preparation of spiro[indoline-naphthoxazine]  
 derivatives as photochromic substances  
 INVENTOR(S): Murakami, Tetsuo; Maeda, Shuichi; Mitsuhashi,  
 Kazuo  
 PATENT ASSIGNEE(S): Mitsubishi Kasei Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03227989	A2	19911008	JP 1990-19608	19900130
PRIORITY APPLN. INFO.:			JP 1990-19608	19900130
OTHER SOURCE(S):		MARPAT 116:128941		

GI



AB The title compds. [I; n = 1-4; R1 = (un)substituted (cyclo)alkyl, alkenyl, or aryl; when n = 1, R1 = (un)substituted C1-5 alkyl; R2, R3 = (alkoxy)alkyl; or R2R3 form a ring; A = straight or branched alkylene; R4 = NR10R11; R10, R11; = H, (alkoxy, alkoxyalkoxy, or hydroxy)alkyl; or NR10R11 = N-containing heterocyclyl; R5-R9 = H, cyano,

Searcher : Shears 571-272-2528

10/080503

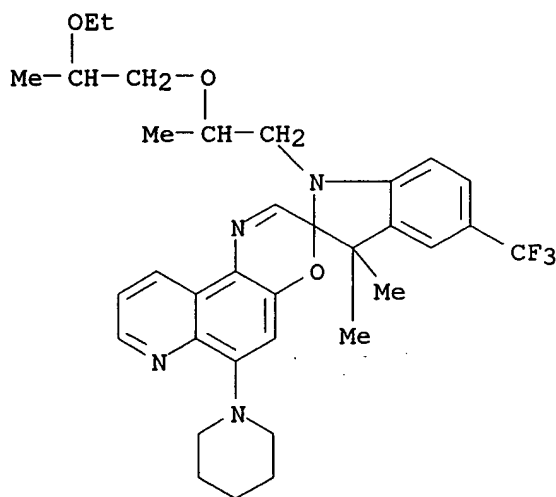
alkyl, alkoxy, NO<sub>2</sub>, alkoxycarbonyl, CF<sub>3</sub>, halo, OH, CO<sub>2</sub>H] are prepared I have excellent soluble in an organic solvent which facilitates film formation by coating, have excellent compatibility with polymers, provide a photosensitive composition with deep color good light-resistance, and excellent stability against repeated coloration-discoloration, can be microencapsulated, and are useful as photochromic materials for fibers, plastics, optical filters, etc. Thus, 8.6 g 2,3,3,5-tetramethylindolenine and 13.7 g 4-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>(CH<sub>2</sub>CH<sub>2</sub>O)<sub>2</sub>Me were reacted 4 h at 110°, cooled to room temperature, 5.8 g Na<sub>2</sub>CO<sub>3</sub> and 80 mL H<sub>2</sub>O were added and the mixture was stirred 2 h at 60° to give 1-[2-(2-methoxyethoxy)ethyl]-2-methylene-3,3,5-trimethylindoline. This was refluxed 3 h with 8.6 g 5-nitroso-6-hydroxyquinoline and 8.5 g piperidine to give I [(AO)<sub>n</sub>R<sub>1</sub> = (CH<sub>2</sub>CH<sub>2</sub>O)<sub>2</sub>Me, R<sub>2</sub> = R<sub>3</sub> = 5-R<sub>5</sub> = Me, R<sub>6</sub>-R<sub>9</sub> = H, R<sub>4</sub> = 1-piperidinyl] (II). A polyester film contg 0.2 g II/100 g resin turned deep purple (λ<sub>max</sub> = 575 nm) and then colorless upon UV and visible-light irradiation resp. A total of 36 I were prepared

IT 138964-94-0P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, as photochromic substance)

RN 138964-94-0 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine],  
1-[2-(2-ethoxypropoxy)propyl]-1,3-dihydro-3,3-dimethyl-6'-(1-piperidinyl)-5-(trifluoromethyl)- (9CI) (CA INDEX NAME)



L50 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1992:21065 CAPLUS

DOCUMENT NUMBER: 116:21065

TITLE: Preparation of spiro(indoleoxazines) as  
photochromic substances useful in lenses

INVENTOR(S): Iwamoto, Kayo; Tanaka, Takashi; Imura, Satoshi;  
Okazaki, Seiji; Tanaka, Shinsuke

PATENT ASSIGNEE(S): Tokuyama Soda Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 67 pp.

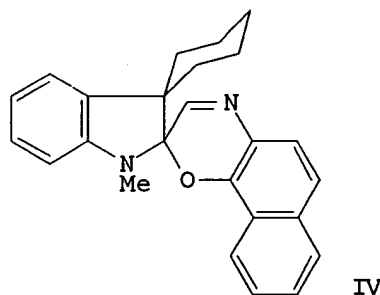
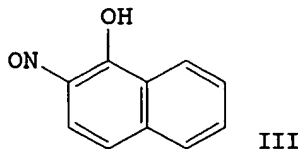
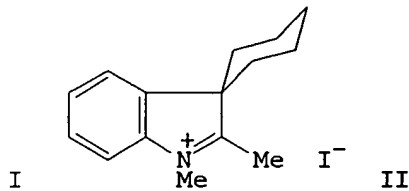
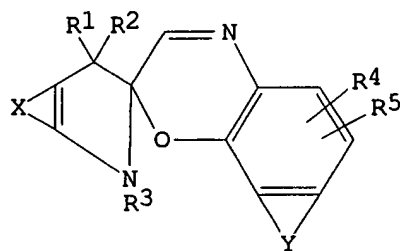
CODEN: EPXXDW

Searcher : Shears 571-272-2528

10/080503

DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 449669	A1	19911002	EP 1991-302870	19910402
R: DE, FR, GB, IT				
JP 03284683	A2	19911216	JP 1990-301183	19901108
JP 2905590	B2	19990614		
JP 04178391	A2	19920625	JP 1990-301184	19901108
JP 2905591	B2	19990614		
AU 9173925	A1	19911003	AU 1991-73925	19910328
AU 638815	B2	19930708		
US 5246989	A	19930921	US 1991-676285	19910328
PRIORITY APPLN. INFO.:			JP 1990-78637	19900329
			JP 1990-202516	19900801
			JP 1990-301183	19901108
			JP 1990-301184	19901108
OTHER SOURCE(S):			MARPAT 116:21065	
GI				



AB Title compds. [I; R1, R2 = alkyl; R1R2C = (bi- or tri-)cycloalkyl; R3 = alkyl, aryl, aralkyl, cyanoalkyl, alkoxy carbonylalkyl; R4, R5 = H, halo, aryl, aralkyl, alkoxy, cyano, haloalkyl, amino, alkoxy carbonyl, haloalkyl, amino, alkoxy carbonyl, heterocyclyl; X, Y = atoms to complete a (substituted) (heterocyclic) (aromatic) ring], were prepared Thus, azolium salt II and 1-hydroxy-2-nitrosonaphthalene III were refluxed in EtOH containing catalytic amount

Searcher : Shears 571-272-2528

10/080503

pyrrolidine to give title compds. III. IV was dispersed in poly(Me methacrylate) using C<sub>6</sub>H<sub>6</sub> and cast film of the product was irradiated with an Hg lamp for 60 s to give  $\lambda_{\max} = 601 \text{ nm}$ ,  $\epsilon(60 \text{ s}) - \epsilon(0 \text{ s}) = 1.4$ , and  $t_{1/1}$  for reduction of the film absorbance was 18 s.

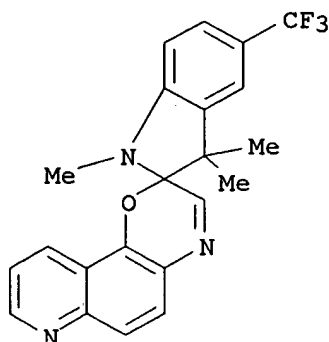
IT 138086-17-6P 138086-18-7P 138086-22-3P

138086-24-5P 138087-00-0P 138106-02-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, as photochromic compound)

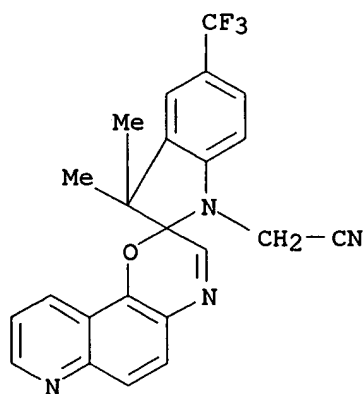
RN 138086-17-6 CAPLUS

CN Spiro[2H-indole-2,2'-[2H]pyrido[2,3-h][1,4]benzoxazine],  
1,3-dihydro-1,3,3-trimethyl-5-(trifluoromethyl)- (9CI) (CA INDEX  
NAME)



RN 138086-18-7 CAPLUS

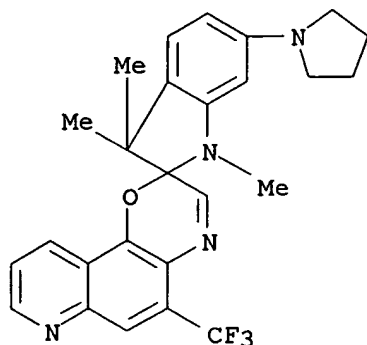
CN Spiro[2H-indole-2,2'-[2H]pyrido[2,3-h][1,4]benzoxazine]-1(3H)-  
acetonitrile, 3,3-dimethyl-5-(trifluoromethyl)- (9CI) (CA INDEX  
NAME)



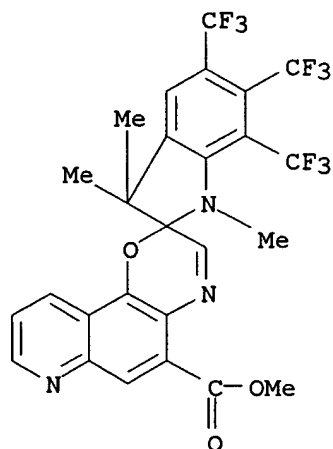
RN 138086-22-3 CAPLUS

CN Spiro[2H-indole-2,2'-[2H]pyrido[2,3-h][1,4]benzoxazine],  
1,3-dihydro-1,3,3-trimethyl-6-(1-pyrrolidinyl)-5'-(trifluoromethyl)-  
(9CI) (CA INDEX NAME)

10/080503

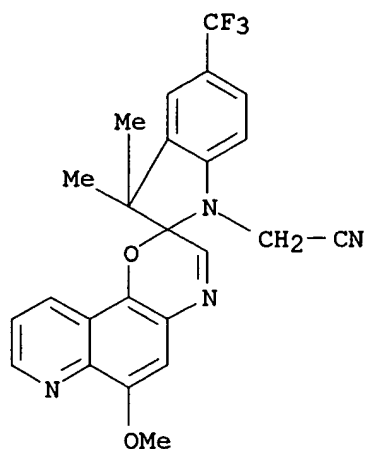


RN 138086-24-5 CAPLUS  
CN Spiro[2H-indole-2,2'-[2H]pyrido[2,3-h][1,4]benzoxazine]-5'-  
carboxylic acid, 1,3-dihydro-1,3,3-trimethyl-5,6,7-tris(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

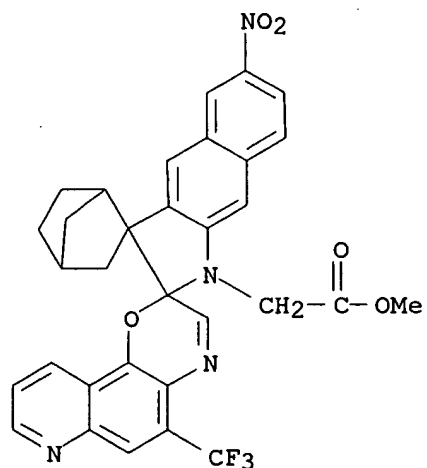


RN 138087-00-0 CAPLUS  
CN Spiro[2H-indole-2,2'-[2H]pyrido[2,3-h][1,4]benzoxazine]-1(3H)-  
acetonitrile, 6'-methoxy-3,3-dimethyl-5-(trifluoromethyl)- (9CI)  
(CA INDEX NAME)

10/080503



RN 138106-02-2 CAPLUS  
CN Dispiro[bicyclo[2.2.1]heptane-2,3'-[3H]benz[f]indole-2'(1'H),2''-[2H]pyrido[2,3-h][1,4]benzoxazine]-1'-acetic acid, 6'-nitro-5''-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)



L50 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1991:644133 CAPLUS  
DOCUMENT NUMBER: 115:244133  
TITLE: Spirooxazines for photochromic material and their manufacture  
INVENTOR(S): Imura, Tomohito; Tanaka, Takashi; Kida, Yasuji  
PATENT ASSIGNEE(S): Tokuyama Soda Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1

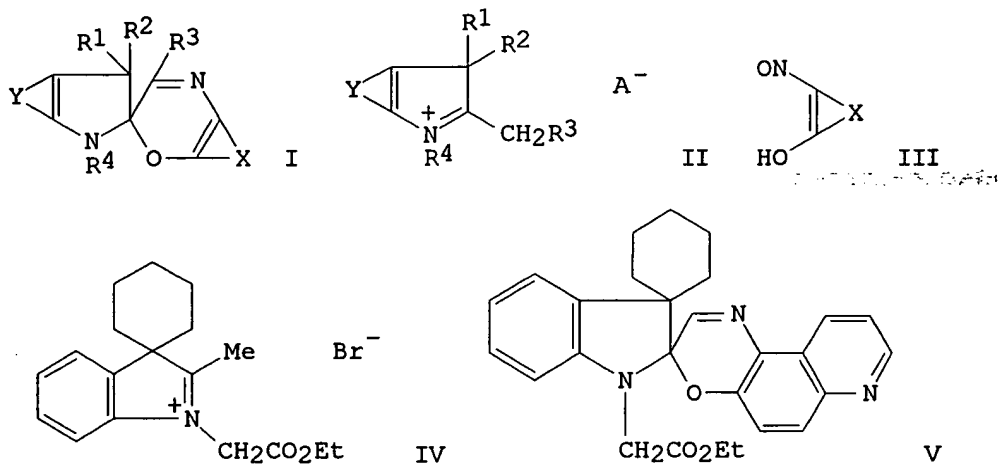
Searcher : Shears 571-272-2528



10/080503

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03095184	A2	19910419	JP 1989-231365	19890908
PRIORITY APPLN. INFO.:			JP 1989-231365	19890908
GI				



AB The title spirooxazine I [X forms (substituted) unsatd. heterocycle; Y forms (substituted) aromatic hydrocarbon, (substituted) unsatd. heterocycle; R1-2 = H, alkyl; R1-2 may form rings; R3 = H, alkyl, substituted amino; R4 = alkoxy-caronylalkyl] is prepared from an azolium salt II and a nitroso compound III. Thus, a spiro compound IV and 5-nitroso-6-quinolinolol were treated to give title spirooxazine V showing good photochromic property.

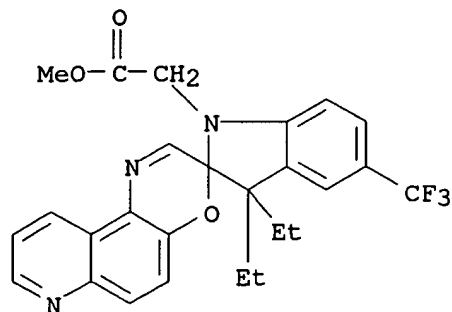
IT 137195-90-5P

RL: PREP (Preparation)  
(preparation of, photochromic)

RN 137195-90-5 CAPLUS

CN Spiro[2H-indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine]-1(3H)-acetic acid, 3,3-diethyl-5-(trifluoromethyl)-, methyl ester (9CI) (CA INDEX NAME)

10/080503



L50 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1990:423922 CAPLUS  
 DOCUMENT NUMBER: 113:23922  
 TITLE: Preparation of oxazolo-, imidazo-, and triazoloquinolinecarboxylic acid derivatives as antibacterials  
 INVENTOR(S): Miyamoto, Koshi; Egawa, Hiroshi; Fujita, Masahiro; Kataoka, Masahiro; Nakano, Junji; Matsumoto, Junichi; Nakamura, Shinichi  
 PATENT ASSIGNEE(S): Dainippon Pharmaceutical Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01308281	A2	19891212	JP 1988-217639	19880830
JP 2800939	B2	19980921		

PRIORITY APPLN. INFO.: JP 1987-218521 19870831  
 JP 1987-255221 19871009  
 JP 1988-73003 19880325

OTHER SOURCE(S): MARPAT 113:23922  
 GI For diagram(s), see printed CA Issue.  
 AB Tri- or tetracyclic heterocycles [I, II; ring A = (alkyl or haloalkyl-substituted) oxazole, imidazole, triazole, or imidazolinone; R1 = (fluoro)alkyl, cycloalkyl, (un)substituted Ph; X2 = O, S, CH2; Y = halo, (N-monoalkyl or N,N-dialkyl)aminoalkylthio, (un)substituted cyclic amino] are prepared. Thus, a mixture of 5-amino-1-cyclopropyl-7,8-difluoro-6-hydroxy-1,4-dihydro-4-oxoquinoline-3-carboxylic acid and (EtO)3CH in DMF was heated 30 min 100-110° to give 6-cyclopropyl-4,5-difluoro-6,9-dihydro-9-oxoxazolo[4,5-f]quinoline-8-carboxylic acid. I were tested against bacteria such as Staphylococcus aureus, Escherichia coli, etc., exhibiting min. inhibitory concentration of 0.025 to 12.5 µg/mL.  
 IT 127624-47-9P 127624-74-2P 127624-75-3P  
 127624-76-4P 127624-77-5P  
 RL: BAC (Biological activity or effector, except adverse); BSU

Searcher : Shears 571-272-2528

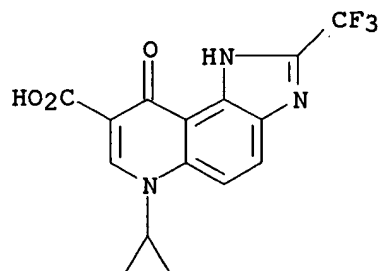
10/080503

(Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of, as antibacterial)

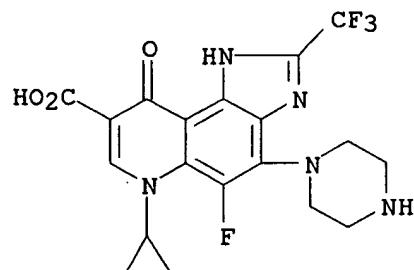
RN 127624-47-9 CAPLUS

CN 1H-Imidazo[4,5-f]quinoline-8-carboxylic acid, 6-cyclopropyl-6,9-dihydro-9-oxo-2-(trifluoromethyl)- (9CI) (CA INDEX NAME)



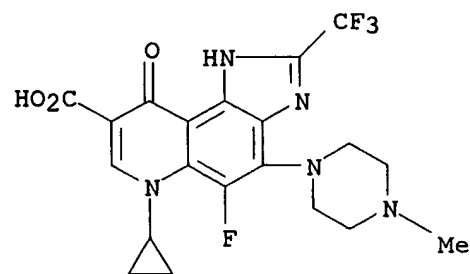
RN 127624-74-2 CAPLUS

CN 1H-Imidazo[4,5-f]quinoline-8-carboxylic acid, 6-cyclopropyl-5-fluoro-6,9-dihydro-9-oxo-4-(1-piperazinyl)-2-(trifluoromethyl)- (9CI) (CA INDEX NAME)



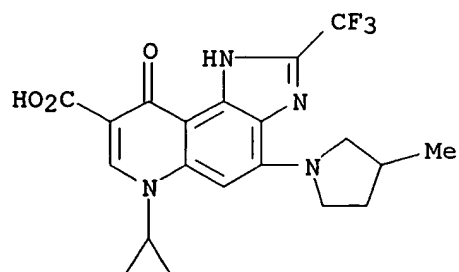
RN 127624-75-3 CAPLUS

CN 1H-Imidazo[4,5-f]quinoline-8-carboxylic acid, 6-cyclopropyl-5-fluoro-6,9-dihydro-4-(4-methyl-1-piperazinyl)-9-oxo-2-(trifluoromethyl)- (9CI) (CA INDEX NAME)

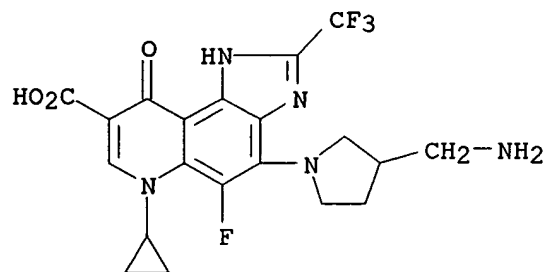


10/080503

RN 127624-76-4 CAPLUS  
CN 1H-Imidazo[4,5-f]quinoline-8-carboxylic acid, 6-cyclopropyl-6,9-dihydro-4-(3-methyl-1-pyrrolidinyl)-9-oxo-2-(trifluoromethyl)- (9CI)  
(CA INDEX NAME)



RN 127624-77-5 CAPLUS  
CN 1H-Imidazo[4,5-f]quinoline-8-carboxylic acid, 4-[3-(aminomethyl)-1-pyrrolidinyl]-6-cyclopropyl-5-fluoro-6,9-dihydro-9-oxo-2-(trifluoromethyl)- (9CI) (CA INDEX NAME)



L50 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1989:622190 CAPLUS  
DOCUMENT NUMBER: 111:222190  
TITLE: Photochromic spiro(benzoindolinopyridobenzoxazine) compounds  
INVENTOR(S): Nakajima, Mikito; Kawashima, Junji; Egawa, Masaru  
PATENT ASSIGNEE(S): Seiko Epson Corp., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01106887	A2	19890424	JP 1987-264570	19871020

Searcher : Shears 571-272-2528

10/080503

JP 08026033  
PRIORITY APPLN. INFO.:  
GI

B4 19960313

JP 1987-264570

19871020

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

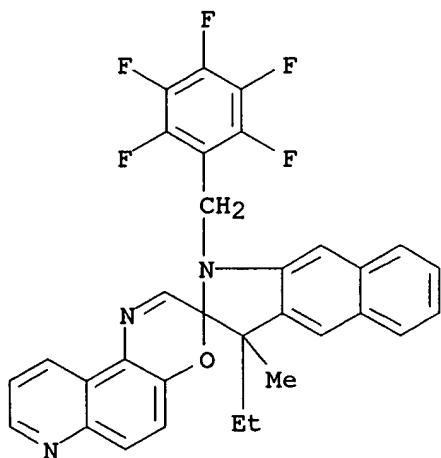
AB The title compds. of the structures I, II, and III [R1-R10 = H, alkyl, alkoxy, benzyl, aryl, halo, NO<sub>2</sub>, alkoxyalkyl, CN, alkylamino, CO<sub>2</sub>H, carboxyalkyl, or a polymerizable or condensable group; R2 and R3 together may form an (un)saturated hydrocarbon ring] are prepared I, II, and III show excellent durability and are useful for recording materials, optical devices, decorations, and the like. Thus, 1,2,3,3-tetramethylbenz[g]indolium iodide and 5-nitroso-6-quinolinol were refluxed in EtOH containing Et<sub>3</sub>N for 5 h to give 55% II (R1-R3 = Me, R4-R10 = H) (IV). A diethylene glycol bis(allyl carbonate) resin plate was immersed in a solution of IV in diethylene glycol and irradiated by UV light to give a plate with transmittance 53% initially and 55% after a 50-h exposure to a fade-o-meter vs. 60 and 91, resp., using 1,3,3,4,6-hexamethylindolino-7'-methoxybenzopyrylospiran instead of IV.

IT 123648-37-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and photochromism of)

RN 123648-37-3 CAPLUS

CN Spiro[2H-benz[f]indole-2,3'-[3H]pyrido[3,2-f][1,4]benzoxazine],  
3-ethyl-1,3-dihydro-3-methyl-1-[(pentafluorophenyl)methyl]- (9CI)  
(CA INDEX NAME)



L50 ANSWER 16 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1986:565009 CAPLUS

DOCUMENT NUMBER: 105:165009

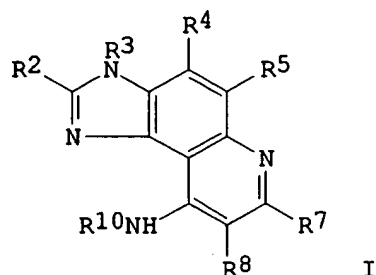
TITLE: Imidazo[4,5-f]quinolines useful as  
immunomodulating agents

Searcher : Shears 571-272-2528

10/080503

INVENTOR(S): Alaimo, Robert James; Anderson, Jon Alan  
 PATENT ASSIGNEE(S): Norwich Eaton Pharmaceuticals, Inc., USA  
 SOURCE: Eur. Pat. Appl., 59 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 187705	A2	19860716	EP 1986-300057	19860107
EP 187705	A3	19880511		
R: BE, DE, FR, GB, IT, NL				
CA 1263378	A1	19891128	CA 1986-499088	19860107
JP 61210085	A2	19860918	JP 1986-1950	19860108
US 4716168	A	19871229	US 1986-858093	19860429
PRIORITY APPLN. INFO.:			US 1985-689628	19850108
OTHER SOURCE(S):			CASREACT 105:165009	
GI				



AB Imidazo[4,5-f]quinolines I [R2 = H, alkyl, heterocyclyl, trihalomethyl, (un)substituted Ph; R3-R5 = H, alkyl; R4R5 = alkylene; R7 = H, alkyl, heteroaryl, alkoxy carbonyl, trihalomethyl, (un)substituted Ph; R8 = H, alkyl, alkoxy carbonyl; R7R8 = alkylene; R10 = H, alkyl, cycloalkyl, naphthyl, (un)substituted Ph, heteroaryl, phenylalkyl] enhance the immune system response by protection of mice challenged with *Pseudomonas aeruginosa* (162 examples). I were prepared from imidazo[4,5-f]quinolin-9-ols (II), which were converted to the 9-Cl compds. and treated with the appropriate amines. II were prepared, e.g., by the condensation of 5-amino-2-substituted benzimidazoles with  $\beta$ -keto esters, followed by thermal cyclization of the resultant benzimidazolylacrylates in boiling Dowtherm A.

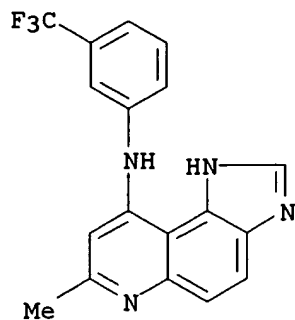
IT 104687-00-5 104687-10-7 104687-40-3  
 104687-66-3 104687-67-4  
 RL: BIOL (Biological study)  
 (immunity enhancement by)

RN 104687-00-5 CAPLUS

CN 1H-Imidazo[4,5-f]quinolin-9-amine, 7-methyl-N-[3-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)

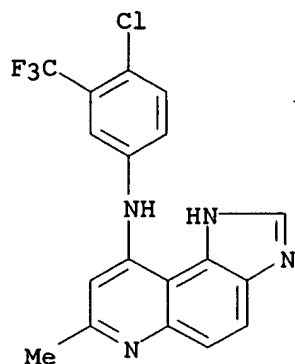
Searcher : Shears 571-272-2528

10/080503



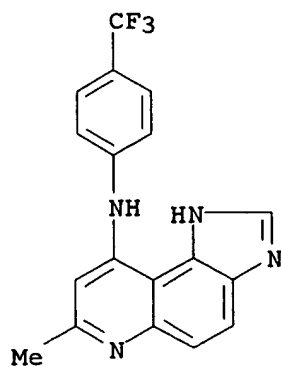
RN 104687-10-7 CAPLUS

CN 1H-Imidazo[4,5-f]quinolin-9-amine, N-[4-chloro-3-(trifluoromethyl)phenyl]-7-methyl- (9CI) (CA INDEX NAME)



RN 104687-40-3 CAPLUS

CN 1H-Imidazo[4,5-f]quinolin-9-amine, 7-methyl-N-[4-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



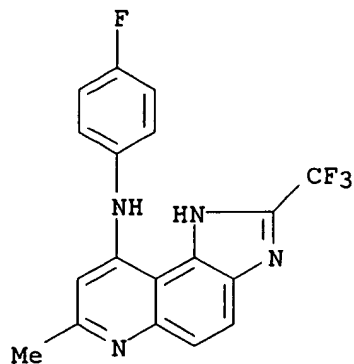
RN 104687-66-3 CAPLUS

CN 1H-Imidazo[4,5-f]quinolin-9-amine, N-(4-fluorophenyl)-7-methyl-2-

Searcher : Shears 571-272-2528

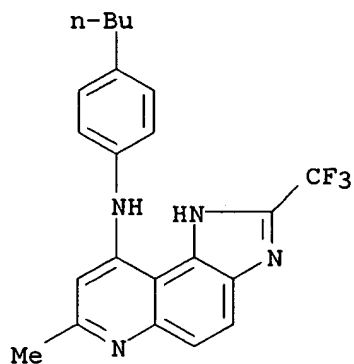
10/080503

(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 104687-67-4 CAPLUS

CN 1H-Imidazo[4,5-f]quinolin-9-amine, N-(4-butylphenyl)-7-methyl-2-(trifluoromethyl)- (9CI) (CA INDEX NAME)



L50 ANSWER 17 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1982:527565 CAPLUS

DOCUMENT NUMBER: 97:127565

TITLE: Alkaline hydrolysis of 2-(trifluoromethyl)imidazo[4,5-f]- and -[4,5-h]quinolines

AUTHOR(S): Moores, Ian G.; Smalley, Robert K.; Suschitzky, Hans

CORPORATE SOURCE: Dep. Chem. Appl. Chem., Univ. Salford, Salford, M5 4WT, UK

SOURCE: Journal of Fluorine Chemistry (1982), 20(5), 573-80

CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

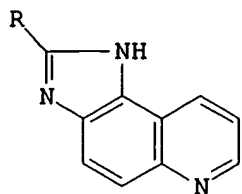
OTHER SOURCE(S): CASREACT 97:127565

GI

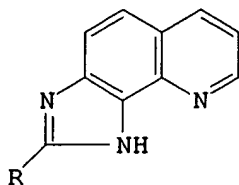
Searcher : Shears 571-272-2528



10/080503



I



II

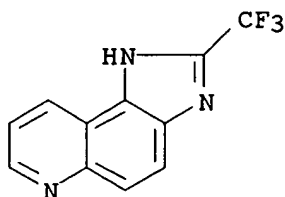
AB Tricyclics (I and II; R = CF<sub>3</sub>) undergo hydrolysis with dilute NaOH and subsequent decarboxylation of the resulting carboxylic acids to give the resp. imidazoquinolines (I and II; R = H). I and II (R = CF<sub>3</sub>) were prepared from 5(6)-acetamido-2-(trifluoromethyl)benzimidazole and 7,8-diaminoquinoline, resp.

IT 83003-96-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)  
(preparation and hydrolysis of)

RN 83003-96-7 CAPLUS

CN 1H-Imidazo[4,5-f]quinoline, 2-(trifluoromethyl)- (9CI) (CA INDEX NAME)



FILE 'REGISTRY' ENTERED AT 15:09:49 ON 21 JUL 2004

L51 39 SEA FILE=REGISTRY ABB=ON PLU=ON (139454-02-7/BI OR  
139454-00-5/BI OR 139454-01-6/BI OR 139454-07-2/BI OR  
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FILE 'CAOLD' ENTERED AT 15:10:12 ON 21 JUL 2004

L52 0 S L51

FILE 'USPATFULL' ENTERED AT 15:10:18 ON 21 JUL 2004

L53 2 S L51

Searcher : Shears 571-272-2528

10/080503

L53 ANSWER 1 OF 2 USPATFULL on STN

ACCESSION NUMBER: 93:78834 USPATFULL  
TITLE: Photochromic compound, composition and use thereof  
INVENTOR(S): Iwamoto, Kayo, Shin-nanyo, Japan  
Tanaka, Takashi, Shin-nanyo, Japan  
Imura, Satoshi, Tokuyama, Japan  
Okazaki, Seiji, Tokuyama, Japan  
PATENT ASSIGNEE(S): Tanaka, Shinsuke, Tokuyama, Japan  
Tokuyama Soda Kabishiki Kaisha, Tokuyama, Japan  
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5246989		19930921
APPLICATION INFO.:	US 1991-676285		19910328 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1990-78637	19900329
	JP 1990-202516	19900801
	JP 1990-301183	19901108
	JP 1990-301184	19901108

DOCUMENT TYPE: Utility  
FILE SEGMENT: Granted  
PRIMARY EXAMINER: Morgan, Kriellion S.  
LEGAL REPRESENTATIVE: Sherman and Shalloway  
NUMBER OF CLAIMS: 26  
EXEMPLARY CLAIM: 1  
NUMBER OF DRAWINGS: 4 Drawing Figure(s); 4 Drawing Page(s)  
LINE COUNT: 1668

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A photochromic compound of the present invention is a spiroxazine compound represented by the following formula: ##STR1## wherein R.sup.1 to R.sup.3 represent a monovalent organic group such as alkyl group, Y represents a fused heterocyclic aromatic hydrocarbon group or an unsaturated heterocyclic group if R.sup.1 and R.sup.2 are both methyl groups, and represents an aromatic hydrocarbon group or unsaturated heterocyclic group if R.sup.1 and R.sup.2 are other than the above mentioned. This compound shows an excellent photochromic characteristics even at high temperatures not less than ambient temperature.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L53 ANSWER 2 OF 2 USPATFULL on STN

ACCESSION NUMBER: 87:89180 USPATFULL  
TITLE: Imidazo(4,5-f)quinolines useful as immunomodulating agents  
INVENTOR(S): Alaimo, Robert J., Norwich, NY, United States  
Andersen, Jon A., Norwich, NY, United States  
PATENT ASSIGNEE(S): Norwich Eaton Pharmaceuticals, Inc., Norwich, NY, United States (U.S. corporation)

NUMBER	KIND	DATE
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Searcher : Shears 571-272-2528

10/080503

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PATENT INFORMATION: US 4716168 19871229  
APPLICATION INFO.: US 1986-858093 19860429 (6)  
RELATED APPLN. INFO.: Continuation of Ser. No. US 1985-689628, filed on  
8 Jan 1985, now abandoned  
DOCUMENT TYPE: Utility  
FILE SEGMENT: Granted  
PRIMARY EXAMINER: Jiles, Henry R.  
ASSISTANT EXAMINER: Richter, J.  
LEGAL REPRESENTATIVE: Graff, IV, Milton B., Zerby, Kim William,  
Schaeffer, Jack D.  
NUMBER OF CLAIMS: 21  
EXEMPLARY CLAIM: 1,13  
LINE COUNT: 1246

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention involves compounds of the class of  
imidazo[4,5-f]quinolines and methods for enhancing the immune  
response system of mammals which comprises systemically  
administering to mammals having a depressed immune function an  
effective but nontoxic amount of a composition comprising such a  
compound.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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Searcher : Shears 571-272-2528